

REMARKS

Claims 1-20 are pending in this application.

Applicants appreciate the courtesies shown to Applicants' representative by Examiners Poon and Tyler in the May 21, 2008 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

I. The Claims Are Patentable Over The Applied References

The Office Action (1) rejects claims 1-2, 5, 8-10, 13, 15-18 and 20 under 35 U.S.C. §103(a) "over the combination of" U.S. Patent No. 5,333,064 to Seidner et al. (Seidner), U.S. Patent No. 5,343,309 to Roetling, and U.S. Patent No. 6,728,381 to Hosoya; (2) rejects claims 3-4, 6, 11-12 and 19¹ under 35 U.S.C. §103(a) "over the combination of" Siedner, Roetling and Hosoya, and further in view of U.S. Patent No. 5,822,467 to Lopez et al. (Lopez); and (3) rejects claims 7 and 14 under 35 U.S.C. §103(a) "over the combination of" Siedner, Roetling and Hosoya, and further in view of U.S. Patent No. 6,538,771 to Sakatani et al. (Sakatani). Applicants respectfully traverse the rejections.

Regarding independent claims 1, 9, 18 and 20, as acknowledged by the Office Action, Seidner and Roetling do not disclose or render obvious "filtering the image data using the selected two or more filters from the filter bank such that the image data is filtered by each of the selected two or more filters resulting in two or more filtered image data each corresponding to either the entire image data or a same portion of the image data" (emphasis added), as recited in independent claim 1 and similarly recited in independent claims 9, 18 and 20. The Office Action cites to Hosoya as disclosing a plurality of filters that filter the entire image data, and asserts that Hosoya cures the deficiencies of Seidner and Roetling. The Office Action asserts that it would have been obvious to modify Seidner and Roetling to filter

¹ Claim 19 is not listed in the rejection heading, but is rejected in the body of the rejection.

the image data by two or more filters resulting in two or more filtered image data corresponding to either the entire image data or a same portion of the image data because "performing parallel filtering using a plurality of simple filters and then blending the outputs rather than calculating a unique, complex filter for each pixel in the image data would further improve processing time" (Office Action, page 4). During the personal interview, Examiner Tyler further indicated that under the proposed combination, filters would be chosen for different pixels/regions of an image as taught by Roetling, these filters being used in parallel to filter the entire image data so as to avoid determining different filters for each pixel/region of the image data.

Hosoya discloses a method of noise reduction of video signals that consist of multiple video components (col. 4, lines 26-29). Hosoya discloses filtering video signals by multiple bandpass filters 12a-12n and a high-pass filter, limiting the filtered signals, and recombining the filtered and limited signals (Fig. 1). The bandpass filters 12a-12n each correspond to and extract a video component of the video signal (col. 4, lines 26-29). As a result, the bandpassed signals each have their video component essentially removed and are composed mainly of noise. The bandpassed signals are subtracted by subtractor 20c from the original video signal thereby canceling out the noise. In summary, each bandpass filter is used to extract a portion of the noise so that that noise can be cancelled from the video signal.

Hosoya does not cure the deficiencies of Seidner and Roetling because it would not have been obvious to combine the references as proposed by the Office Action.

Hosoya discloses the use of multiple bandpass filters each of which extracts a specific noise component that needs to be removed from the video signal. The noise being removed is always present in the input video signals around each of the video components. In other words, each bandpass filter is used in Hosoya because each bandpass filter provides a useful service of reducing noise in the video signal.

In Hosoya, every filter used is required at all times because the noise is always present in all the frequency ranges. Because all of the bandpass filters are required all of the time, Hosoya is understandably silent as to any benefit that would result from using multiple filters when only one of the filters is needed. In Roetling and Seidner, only one filter is needed to remove a given screen frequency, once the screen frequency is determined. Because Hosoya does not disclose any use of any filter when there is no noise to be removed, at best, Hosoya's disclosure concurs with that of Seidner and Roetling that use of one filter is appropriate within an image section having a single screen frequency that needs to be removed. Because Hosoya does not teach use of filters in parallel where more than one filter is not needed, Applicants respectfully submit that the proposed combination of Hosoya with Seidner and Roetling to result in a system that uses multiple filters in parallel, even though only one is required at any given time, is not reasonable or based on any teaching or suggestion of Hosoya. Thus, the proposed modification would not have been obvious.

During the personal interview, Examiner Tyler asserted that a benefit would be achieved by determining the filter characteristics needed for each pixel/region of the image data, as per Roetling, and then using all the determined filters to filter the entire image because (1) this would avoid producing a complex filter; and (2) this would save processing time of determining the filter for each individual pixel/region of the image data.

Under the proposed modification of Seidner and Roetling, the entire image data would be filtered by multiple filters, each of which would be determined as taught by Roetling. In contrast, Roetling discloses determining and using a single filter for each pixel/region of image data. Thus, the modification proposed by the Office Action involves more complicated filtering than is used in Seidner and Roetling alone, not a simplification thereof.

Further, under the proposed combination, each pixel/region of image data would still need to be analyzed as per Roetling to determine the filter characteristics needed to remove

the screen frequency. These calculations would need to be done for each pixel/region of image data as each pixel/region of image data could potentially require a different filter than all the previous pixels/regions of image data already analyzed. Whether this analysis is done piecemeal for each pixel/region of image data and followed by the filtering process (as in Roetling), or is done all at the same time before performing a filtering process on the entire image data at the same time, the same amount of analysis will be done. Thus, contrary to what was asserted by the Patent Office, there is no benefit of saving analysis time under the Office Action's modification of Seidner and Roetling.

Further, following the Office Action's proposal, there would be an increase in processing, not a decrease. Under Roetling, each pixel/region of image data is filtered by one filter. In contrast, under the Office Action's proposed combination, once all the different filters needed for the different screen frequencies of different pixels/regions of the image data are determined, the entire image data is filtered by all of the filters in parallel and the resulting multiple filtered image data are then combined. Because each pixel/region of image data is filtered by multiple filters rather than one, and further because there is an added step of summing the resulting multiple image data, the Office Action's proposed combination would increase, not decrease, the processing time and costs.

Still further, because each pixel/region of image data would be filtered by multiple filters under the Office Action's proposed combination, rather than the single filter appropriate to the pixel/region of image data, the resulting, filtered image data produced by the Office Action's proposed combination would suffer from data loss as compared with the final image data produced by Seidner and Roetling unmodified by Hosoya.

For the foregoing reasons, Applicants submit the proposed combination is improper and request withdrawal of the rejections. The Office Action fails to consider the references as

a whole, but rather improperly selects bits and pieces from each reference using Applicants' claims as a template.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: May 23, 2008

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